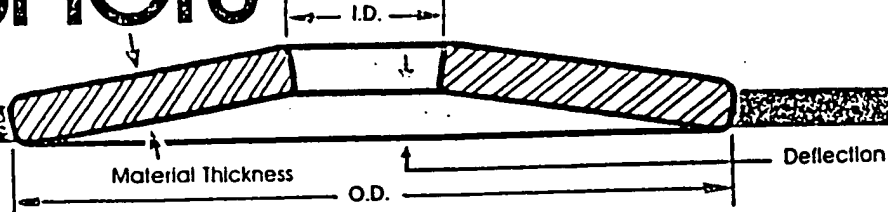


Use Solon Conical Compression Washers for:
 • Thermal Shock! • Vibration!
 • Compressive Set in Gaskets!
 In these applications, Solon Conical Compression Washers used on the bolt provide a reservoir of energy that reduces load loss and maintenance

Solon washers



AISI 6150 Alloy Steel Rockwell C 45/50

| Bolt Size | Part No. | Washer O.D. | Material Thickness | Deflection (Flat) | Load* (Flat) |
|-------------------------------------|-----------|-------------|--------------------|-------------------|--------------|
| 1/4" Washer I.D. .258" | 4-L-42 | .563 | .042/.044 | .013 | 1,100 |
| | 4-M-52 | .688 | .052/.054 | .017 | 1,500 |
| | 4-H-61 | .813 | .061/.064 | .023 | 2,000 |
| | 4-EH-70 | .938 | .070/.074 | .030 | 2,700 |
| 5/16" Washer I.D. .322" | 5-L-52 | .688 | .052/.054 | .016 | 1,500 |
| | 5-M-61 | .813 | .061/.064 | .020 | 2,000 |
| | 5-H-70 | .938 | .070/.074 | .024 | 2,700 |
| | 5-EH-80 | 1.063 | .080/.084 | .031 | 3,500 |
| 3/8" Washer I.D. .386" | 6-L-61 | .813 | .061/.064 | .018 | 2,000 |
| | 6-M-70 | .938 | .070/.074 | .022 | 2,700 |
| | 6-H-80 | 1.063 | .080/.084 | .029 | 3,500 |
| | 6-EH-89 | 1.188 | .089/.093 | .032 | 4,000 |
| 7/16" Washer I.D. .450" | 7-L-70 | .938 | .070/.074 | .020 | 2,700 |
| | 7-M-80 | 1.063 | .080/.084 | .026 | 3,500 |
| | 7-H-89 | 1.188 | .089/.093 | .031 | 4,000 |
| | | | | | |
| 1/2" Washer I.D. .515" | 8-L-80 | 1.063 | .080/.084 | .023 | 3,500 |
| | 8-M-89 | 1.188 | .089/.093 | .028 | 4,000 |
| | 8-H-98 | 1.313 | .098/.103 | .033 | 4,500 |
| | 8-EH-112 | 1.500 | .112/.118 | .040 | 6,000 |
| 9/16" Washer I.D. .579" | 9-L-89 | 1.188 | .089/.093 | .026 | 4,000 |
| | 9-M-98 | 1.313 | .098/.103 | .031 | 4,500 |
| | 9-H-112 | 1.500 | .112/.118 | .038 | 6,000 |
| | | | | | |
| 5/8" Washer I.D. .644" | 10-L-98 | 1.313 | .098/.103 | .028 | 4,500 |
| | 10-M-112 | 1.500 | .112/.118 | .036 | 6,000 |
| | 10-H-131 | 1.750 | .131/.137 | .043 | 8,500 |
| | 10-EH-150 | 2.000 | .150/.157 | .056 | 12,000 |
| 3/4" Washer I.D. .773" | 12-L-112 | 1.500 | .112/.118 | .033 | 6,000 |
| | 12-M-131 | 1.750 | .131/.137 | .043 | 8,500 |
| | 12-H-150 | 2.000 | .150/.157 | .053 | 12,000 |
| | 12-EH-168 | 2.250 | .168/.176 | .062 | 15,000 |
| 7/8" Washer I.D. .901" | 14-L-131 | 1.750 | .131/.137 | .036 | 8,500 |
| | 14-M-150 | 2.000 | .150/.157 | .048 | 12,000 |
| | 14-H-168 | 2.250 | .168/.176 | .057 | 15,000 |
| | | | | | |
| 1" Washer I.D. 1.030" | 16-L-150 | 2.000 | .150/.157 | .042 | 12,000 |
| | 16-M-168 | 2.250 | .168/.176 | .052 | 15,000 |
| | 16-H-187 | 2.500 | .187/.196 | .060 | 18,000 |
| | | | | | |
| 1 1/8" Washer I.D. 1.155" | 18-L-168 | 2.250 | .168/.176 | .048 | 15,000 |
| | 18-M-187 | 2.500 | .187/.196 | .057 | 18,000 |
| | 18-H-206 | 2.750 | .206/.216 | .066 | 21,000 |
| | | | | | |
| 1 1/4" Washer I.D. 1.270" | 20-L-187 | 2.500 | .187/.196 | .054 | 18,000 |
| | 20-M-206 | 2.750 | .206/.216 | .062 | 21,000 |
| | 20-H-225 | 3.000 | .225/.236 | .071 | 24,000 |
| | | | | | |
| 1 3/8" Washer I.D. 1.396" | 22-L-206 | 2.750 | .206/.216 | .059 | 21,000 |
| | 22-M-225 | 3.000 | .225/.236 | .068 | 24,000 |
| | 22-H-244 | 3.250 | .244/.256 | .077 | 28,000 |
| | | | | | |
| 1 1/2" Washer I.D. 1.524" | 24-L-225 | 3.000 | .225/.236 | .064 | 24,000 |
| | 24-M-244 | 3.250 | .244/.256 | .074 | 28,000 |
| | 24-H-262 | 3.500 | .262/.275 | .083 | 31,000 |
| | | | | | |

301 Stainless Steel Rockwell C 38/43

| Bolt Size | Part No. | Washer O.D. | Material Thickness | Deflection (Flat) | Load* (Flat) |
|-----------------------------------|------------|-------------|--------------------|-------------------|--------------|
| 1/4" Washer I.D. .258" | 4-L-42301 | .563 | .039/.045 | .012 | 600 |
| | 4-M-52301 | .688 | .047/.053 | .013 | 650 |
| | 4-H-61301 | .813 | .059/.065 | .021 | 1,350 |
| | 4-EH-70301 | .938 | .070/.074 | .023 | 1,450 |
| 5/16" Washer I.D. .322" | 5-L-52301 | .688 | .047/.053 | .013 | 1,000 |
| | 5-M-61301 | .813 | .059/.065 | .015 | 1,100 |
| | 5-H-70301 | .938 | .070/.074 | .022 | 1,500 |
| | 5-EH-80301 | 1.063 | .080/.086 | .023 | 1,700 |
| 3/8" Washer I.D. .386" | 6-L-61301 | .813 | .059/.065 | .015 | 1,300 |
| | 6-M-70301 | .938 | .070/.074 | .020 | 1,500 |
| | 6-M-80301 | .938 | .080/.086 | .014 | 1,850 |
| | 6-H-80301 | 1.063 | .080/.086 | .024 | 1,900 |
| 1/2" Washer I.D. .515" | 6-EH-89301 | 1.188 | .091/.099 | .025 | 2,200 |
| | 8-L-80301 | 1.063 | .080/.086 | .019 | 2,300 |
| | 8-L-90301 | 1.063 | .091/.099 | .018 | 2,800 |
| | 8-M-89301 | 1.188 | .091/.099 | .023 | 2,600 |
| 1/2" Washer I.D. .515" | 818125301 | 1.125 | .121/.129 | .018 | 6,000 |
| | 820125301 | 1.250 | .121/.129 | .022 | 5,500 |
| | | | | | |
| | | | | | |

17-7PH Stainless Steel Rockwell C 38/43

| Bolt Size | Part No. | Washer O.D. | Material Thickness | Deflection (Flat) | Load* (Flat) |
|----------------------------------|--------------|-------------|--------------------|-------------------|--------------|
| 1/2" Washer I.D. .515" | 8-M-89177 | 1.188 | .091/.099 | .026 | 3,300 |
| | 8-H-90177 | 1.313 | .091/.099 | .030 | 3,200 |
| | 8-EH-112177 | 1.500 | .112/.122 | .035 | 4,200 |
| | 819125177 | 1.188 | .120/.130 | .019 | 5,700 |
| 5/8" Washer I.D. .644" | 820125177 | 1.250 | .120/.130 | .022 | 6,500 |
| | 10-L-98177 | 1.313 | .091/.099 | .026 | 3,200 |
| | 10-M-112177 | 1.500 | .112/.122 | .030 | 4,500 |
| | 10-H-131177 | 1.750 | .131/.141 | .041 | 6,800 |
| 3/4" Washer I.D. .773" | 10-EH-150177 | 2.000 | .150/.160 | .048 | 7,500 |
| | 1022131177 | 1.375 | .131/.141 | .022 | 6,600 |
| | 12-L-112177 | 1.500 | .112/.122 | .029 | 6,000 |
| | 12-M-131177 | 1.750 | .131/.141 | .035 | 7,200 |
| 3/4" Washer I.D. .773" | 12-H-150177 | 2.000 | .150/.160 | .041 | 8,000 |
| | | | | | |
| | | | | | |
| | | | | | |

Machine Screw Sizes

17-7PH Stainless Steel Rockwell C 38/43

| Bolt Size | Part No. | Washer O.D. | Material Thickness | Deflection (Flat) | Load* (Flat) |
|---------------------------------|-------------|-------------|--------------------|-------------------|--------------|
| #6 Washer I.D. .142" | 06-L-21177 | .281 | .018/.022 | .005 | 175 |
| | 06-M-26177 | .344 | .023/.027 | .008 | 275 |
| | 06-H-31177 | .406 | .029/.033 | .009 | 400 |
| #8 Washer I.D. .168" | 08-L-26177 | .344 | .023/.027 | .007 | 275 |
| | 08-M-31177 | .406 | .029/.033 | .009 | 400 |
| | 08-H-35177 | .469 | .033/.037 | .010 | 500 |
| #10 Washer I.D. .196" | 010-L-31177 | .406 | .029/.033 | .008 | 400 |
| | 010-M-35177 | .469 | .033/.037 | .009 | 500 |
| | 010-H-42177 | .563 | .039/.045 | .012 | 600 |

Finish: Mechanically zinc plated .0005" thick with a clear chromate dip. Guaranteed free of hydrogen embrittlement. Where plating is not required, a scale-free oiled finish can be supplied. Cadmium and tin can be mechanically plated on special order.

{Finish: Scale-free and deburred.
 Metric ID's available

*Load: Dead Weight, Lbs.

Do not exceed temperature range shown on page 2. Consult factory for other temperatures.

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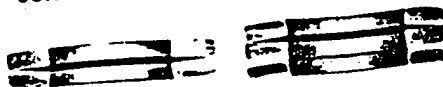
Additional load and deflection washer combinations

on Compression Washers be used in series in a wide variety of applications requiring extra travel to preload against anticipated increased joint looseness. By stacking the washers face-to-face, deflection (travel) is doubled. Add a third washer and deflection is tripled.

Shock Absorber - Conical compression washers used in series on a shaft where recoil is a problem enable the multiple deflection increase to be used to absorb shock loads.

Parallel In parallel service, washers are tested. This increases the load of washers without increasing deflection. For example, a washer tested at a 4200 lb. load when used in parallel with a second washer increases the load to 8400 lbs. The first washer's deflection of .035" remains unchanged with the second washer tested on top.

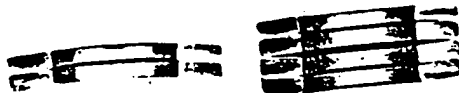
Series Multiplies Deflection



Two in Series
Load of One Washer -
Deflection of Two
Washers. Each can be at
opposite ends of bolt.

Three in Series
Load of One Washer.
Deflection of Three
Washers.

Parallel Multiplies Load

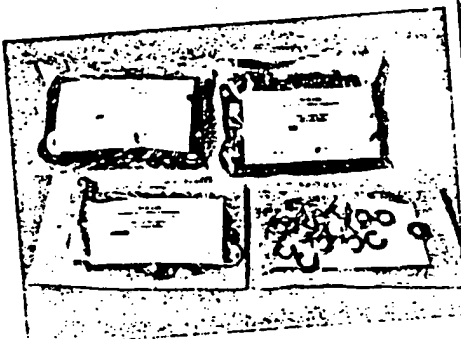


Two in Parallel
Load of Two Washers.
Deflection of One
Washer.

**Two Parallel Sets
in Series**
Load of Two Washers.
Deflection of Two
Washers. Each Set can
be at opposite ends of
Bolt.

Convenience packaging

■ Solon Compression Washers are normally shipped in bulk, but can be packaged in most any desired quantity on special order. Heavy gauge plastic bags are used for product visibility and positive sealing to prevent loss of parts. Labeling of individual packages consists of quantity, Solon part number, and customer part number or identification code as required.



Typical Applications Include:

Small Engines
Motor Generator Sets
Structural Members
Feeder Bus Bar
Valve Gland Packing
Chucks

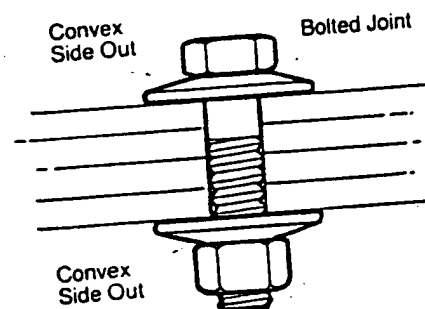
Switchgear
Substations
Heat Exchangers
Flange Pipe Fittings
Flange Bolt Circles
Machine Tools

Off-Highway Equipment
Tractors/Trucks/
Locomotives
Seismic Damping
Line Hardware

Recommended Installation

■ Select the largest compression washer possible. There should be no interference with washers on adjoining bolts or overhang at the edge of the connector.

Use a flat washer with an O.D. no smaller than the compression washer and approximately 100 percent thicker than the compression washer. If a thicker washer is not available, use a stack of three standard flat washers or a second compression washer.



Above: Two Washers in Series

1 The compression washer fits under the nut or bolt head, convex side out. The flat washer is used at the other end of the bolt.

2 Tighten the nut until a sudden increase in torque is noticed. The compression washer is now flattened. (The longer the arm on the wrench, the easier the torque increase can be detected.) Note: It is not necessary to "back off" the nut after tightening.

3 Where the thickness of the joint being assembled is greater than three inches, a second compression washer should be used at the opposite end of the bolt instead of the flat washer, and installed the same way as described in Step 2.

Bolts, nuts, and flat washers should be zinc, cadmium or tin plated.

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